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THE PLANT DISEASE REPORTER

Issued By

Division of Mycology and Disease Survey

Volume XX Number 18

October 15, 1936.

BUREAU OF PLANT INDUSTRY

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DIVISION OF MYCOLOGY AND DISEASE SURVEY

Vol. XX October 15, 1936 Number 18

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Brittle root disease of horseradish in Illinois resembles the effects of curly top infection on this crop as described from the West, according to K. J. Kadow and H. W. Anderson, page 288.

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There is rather strong evidence that the source of disease present in Georgia-grown tomato plants is the seed, according to Harold T. Cook, page 289.

Virus diseases were found to be most important on canning beans in New York this year in a survey reported by A. L. Harrison and W. H. Burkholder, page 290.

A. L. Harrison also reports on varietal susceptibility of lima beans to mosaic, page 291.

C. M. Haenseler reports that rust is unusually abundant on green beans in New Jersey, page 292.

W. W. Gilbert and G. B. Ramsey have both identified the non-parasitic trouble of watermelon reported in the September 15 issue as internal browning, page 292. Dr. Ramsey also reports its occurrence in melons from Missouri.

Brown spot and bacterial stalk rot of corn were prevalent near Cairo, Illinois, this year, according to Benjamin Koehler, page 293.

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TOBACCO DISEASE FIELD SURVEY IN WISCONSIN, 1936

James Johnson

The 1936 season was characterized by drought and high temperatures. The rainfall at Madison for July was less than 0.1 inch and the mean temperature for this month reached 73.8° F. A large percentage of the crop received little or no rain from transplanting until about the middle of August, after which the rainfall was fairly heavy and frequent in most sections. A large part of the acreage, which appeared to be almost a complete failure up to the rainy period, made a remarkable growth; and the average yield per acre for the State will be relatively good. Poor stands or complete failure of late planted tobacco on sod or poorly prepared land, together with a discontinuance of late plantings on account of the drought, resulted in about a 5 percent lowered acreage. Burning of the leaves on the young crop was widespread when July temperatures reached 100 to 107° F. Drought spot and firing were also general on the lower leaves, conditions relatively uncommon in Wisconsin. Other malnutritional troubles, i. e. potash hunger and frenching, were less common than usual. Very little storm damage occurred until late in August when some hail fell in a limited area, but considerable lodging from wind and rain resulted partly as a consequence of the small root systems developed under the prevailing high soil temperatures.

Brown root-rot, a malady of uncertain cause, but associated with certain preceding crops, was comparatively rare in amount and inconspicuous in degree. Less sod land was used for tobacco than in earlier years, but it is also likely that the drought and perhaps the high soil temperatures were instrumental in reducing the severity and masking the effects.

Black root-rot (Thielaviopsis basicola) was fairly general early in the season, causing some stunting in the early planted crops. The mean air temperature for June was 65.4° F., which is somewhat below normal for this month. The drought, however, largely obscured the early effects of black root-rot, and the high soil temperatures held the disease in check in the later plantings. As a consequence, the root-rot resistant strains showed no marked advantage over nonresistant strains in many of the fields where comparable plantings were made this year.

Tobacco wildfire (Bacterium tabacum) was found on five farms in Rock County in 1936. On four of these farms the disease was known to have existed previously. There has been no evidence of any appreciable spread from farm to farm in recent years. Following the August rains, a very heavy crop infection was found in two fields set with diseased plants. Although tobacco blackfire (Bacterium angulatum) was very

general in the seed beds in the spring, no evidence of field infection was noted until early September, following a prolonged rainy period. As usual, this disease was not as virulent as wildfire, but a considerable percentage of the late crops was heavily infected with blackfire.

Mosaic (tobacco virus 1) was conspicuous by its absence in 1936. Even old tobacco fields known to yield heavy early infection in previous years showed only very low percentages prior to the spread resulting from topping. The dry surface soil and the absence of storms favoring infection from the soil is believed to account for the abnormally low percentage of early infection in the State. Only one instance of heavy infection definitely traceable to the seedbed was observed.

The cucumber mosaic virus disease on tobacco was also less common than in recent years.

Streak, a recently described virus disease in Wisconsin, was present in about the normal amount in many fields, appearing to be influenced to a lesser degree by the unusual seasonal conditions than any other disease observed.

Grasshopper damage was general and serious in Dane and Rock Counties. About ten acres of tobacco were badly damaged through the error of growers in applying grasshopper poison (sodium arsenite bait) to the tobacco foliage instead of on the surrounding land.

Considerable damage to the crop in the curing sheds from shed-burn and pole-rot has been reported and is anticipated as a consequence of periods of high atmospheric humidity during the early curing season. (Division of Tobacco and Plant Nutrition.)

CROP DISEASE SURVEY IN MASSACHUSETTS

O. C. Boyd

Observations were made on the following diseases during the last week of August and during September.

The rusts of late plantings of sweet corn (Puccinia sorghi), oats (P. coronata), and bush green beans (P. phaseoli typica), as well as rust of asparagus (P. asparagi) were more noticeable than in the average season. This was particularly true of rust on beans which rarely becomes of any importance on bush varieties. This year, it was general, and in some instances quite damaging, in Bristol and Plymouth counties during the latter half of September. The heaviest infections observed were on Bountiful and in certain fields of French Horticultural shell beans.

Some of the downy mildew diseases were less and some more prevalent than during the past two or three years. Late blight of potato (Phytophthora infestans), which started in some sections in July, became widespread on unsprayed patches and fields of late varieties during the latter part of August and in September and remained until the vines died. The rainy weather during that period contributed to the larger amount of tuber rot than has developed in some past seasons.

The cool, rainy weather of the same period brought on widespread development of cucumber downy mildew (Pseudoperonospora cubensis) which has been very inconspicuous during the past two years. It appeared in the southeastern part of the State around September 5 to 10, and by September 17, it had killed most of the foliage of unprotected fields. While it came too late to affect the early plantings materially, it caused almost a total loss in some late fields that came into picking stage on September 10 to 15. It was not damaging to muskmelons or watermelons.

Only traces of downy mildew on spinach (Peronospora effusa) have been observed up to the last of September. However, it is more likely to develop during October.

This is the first year since 1931 that downy mildew or late blight of tomatoes (P. infestans) has not been observed or reported to date (October 1). Careful search during September 16 to 17 in the late tomato sections of Plymouth and Bristol counties failed to reveal a single instance of the disease even on unsprayed crops. Neither has it appeared in my inoculation and overwintering tests at Amherst and in Bristol County, even though the tests included plants grown from infected seed, plants inoculated with infected seeds and with overwintered refuse from heavily diseased vines and fruits of last year's crop. This is rather surprising since late blight on potatoes and downy mildew of cucumbers have thrived since the first part of September. Two unprotected plantings of tomatoes in Deerfield growing within a few yards of a blighted potato field remained free from the disease.

Dr. E. F. Guba, at the Waltham Field Station, observed on September 8 late blight of tomato both in greenhouses and on out-door crops in Waltham and Tewksbury. This season, however, unquestionably represents the least damage from the disease since 1932, the first year of the recent outbreak in this State.

Both early blight and Septoria leaf-spot (Alternaria solani and Septoria lycopersici) were noticeable over the State during September on unsprayed tomatoes. In fact, the leaf-spot disease was decidedly more damaging than in most seasons. Likewise, early and late blights of

celery (Cercospora apii and Septoria spp.) caused severe damage to many fields during late August and throughout September where adequate protection with dust or spray had not been afforded.

Cucumber mosaic (virus) became destructive in several commercial fields in Bristol County during August. In most instances, according to the growers, it started usually at one end or side of the field and spread gradually over the entire planting. Other fields in the same town remained free. The control of the striped cucumber beetle or aphids appeared to have little connection with its presence or absence. It was much more damaging in the town of Dighton than in most past seasons.

Other diseases of vegetables that were outstanding: Cladosporium scab of cucumbers and muskmelons (C. cucumerinum), Macrosporium and Cercospora leaf spots of carrots (M. carotae and C. apii carotae), Verticillium wilt of eggplant, Cercosporella leaf spot of turnip and rutabaga (C. albo-maculans), and Cladosporium leaf mold of out-door tomatoes (C. fulvum).

Black rot (Bacterium campestre), and the bacterial leaf spot (B. maculicolum) were much less prevalent than in the average year on late cabbage and cauliflower and turnips; and even club-root (Plasmodiophora brassicae) was less noticeable than in most seasons.

On winter squash, all of the leaf-spotting diseases, such as scab (C. cucumerinum), Septoria cucurbitacearum, Bacterium cucurbitae, and Mycosphaerella citrullina, were less damaging than in most past seasons. So, also were anthracnose and leaf blight (Colletotrichum lagenarium and Alternaria cucumerina) of muskmelons. During the wet weather shortly prior to harvest, however, Mycosphaerella did develop rapidly on the petioles, runners, and fruit stalks of maturing vines in many fields. This condition should contribute to the development of black-rot in storage later on.

The most severe case of powdery mildew (? Podosphaera oxyacanthae) of peaches I have ever observed developed in the college orchard during late August and in September. Most of the trees in two orchards showed decided injury to leaves and twigs. The greatest damage occurred in the younger orchard where the tips of most of the branches have no resemblance to a normal peach branch. Considerable premature defoliation occurred in many of the younger trees. (Massachusetts Agricultural Experiment Station.)

BRITTLE ROOT OF HORSERADISH IN ILLINOIS

K. J. Kadow and H. W. Anderson

The most important disease of vegetable crops encountered this year was"brittle root" of horseradish. This disease has been under observation for several years in this State, but usually the losses from it have been small. This year, however, at least 25 percent of the plants in the St. Louis horseradish area have been killed by it. All attempts to determine the cause of the disease have thus far proved unsuccessful. Brittle root is characterized by a typical wilting of diseased plants. Rather definite areas in fields are usually involved, although exceptions to this observation have been noted. The roots of diseased plants show a brown to black discoloration in the region of the phloem tissue. Affected roots are very brittle, hence the common name "brittle root" has been adopted by the growers.

In every essential respect the disease is identical with curly top of beets on horseradish as described by Severin (Severin, H. H. P. Additional host plants of curly top. Hilgardia 3:595-629. 1929. /Horseradish pp. 607-610/). The beet leafhopper (Eutettix tenellus (Baker)), which transmits curly top, has not been reported from this State. However, leafhoppers are very abundant on horseradish this year and attempts to identify those present are being made by members of the Natural History Survey staff. Other aspects of the problem are also being studied.

VEGETABLE DISEASES IN ILLINOIS IN 1936

K. J. Kadow and H. W. Anderson

Except for a few early crops, vegetable yields were greatly reduced in Illinois, because of the prolonged dry hot summer. For the same reason, there were no leaf spot diseases of importance, although several were in evidence late in the growing season. Virus diseases were much less severe than usual, especially on tomatoes. Tomato virus specimens were collected and identified by Dr. Doolittle of the United States Department of Agriculture. It appears that the heavy losses caused by virus diseases so common to tomatoes in Illinois are due primarily to cucumber mosaic.

Fusarium wilt (F. lycopersici) of tomatoes has caused some heavy losses in the vicinity of Bloomington. Growers are gradually learning the value of resistant varieties.

Cabbage yellows (F. conglutinans) has been generally serious throughout the State, causing losses of about 5 percent. A few instances have been observed where yellows, in combination with the extreme heat, has killed or badly stunted varieties normally highly resistant.

Other diseases of minor concern were Verticillium wilt of eggplant, Septoria leaf spot (S. lycopersici) of tomato, Macrosporium leaf and fruit spot of tomatoes and peppers, and the leaf spot of cabbage and cauliflower. White rust (Albugo candida) of horseradish made its appearance late in the season, causing slight leaf injury. Onion smut (Urocystis cepulae) was serious in a few isolated cases. Bacterial canker (Aplanobacter michiganense) of tomato was a serious disease in one planting and of minor concern in a few others. Nematodes caused minor losses in two large shipments of southern cabbage plants. Some nematode infestation was found on tomatoes from the South as was also "collar rot". Mosaic of cucumbers was destructive in two large plantings, but generally speaking it was of little concern this year. This fact seems to be correlated with the scarcity of cucumber beetles. (College of Agriculture, University of Illinois.)

BACTERIAL CANKER IN GEORGIA-GROWN TOMATO PLANTS

Harold T. Cook

The report in the Plant Disease Reporter for August 1 (page 226) of bacterial canker (Aplanobacter michiganense) on Georgia certified tomato plants in Virginia was based on statements in two letters from the canning company that they furnished only Georgia certified plants to their growers. Further investigation with the cooperation of Dr. J. H. Miller of Georgia has revealed that these plants were not inspected or certified by the State of Georgia.

The investigation showed that two lots of Bonny Best plants grown by the same plant company, but from different seed, were received in the same shipment in the neighborhood where bacterial canker was found. Both lots of plants were grown from certified seed that had been fermented and treated with bichloride of mercury by the seed grower and retreated with bichloride of mercury by the Georgia plant grower. The seed were about 18 months old at the time of planting. The plants were grown on new land that was previously in pines. One lot of plants was packed 1500 to a crate and growers using them suffered heavy losses from bacterial canker. The other lot was packed 1200 to a crate and growers using them had a good crop and apparently had little if any canker. The plant company in Georgia reported that there was no sign of disease when the plants were shipped. Apparently the disease was seed-borne.

This occurrence of bacterial canker raises some question as to whether or not tomato seed certification as practiced by some states is adequate for the control of some tomato diseases. It also throws considerable doubt on the effectiveness of tomato seed fermentation and

treatment as practiced by some seed producers. (Virginia Truck Experiment Station, Norfolk. October 9.)

/NOTE: In the Reporter for October 15 of last year (vol. 19, pages 278-279) is a report by Dr. Miller concerning the appearance of disease in Georgia plant fields grown from northern treated and certified seed./

CANNING BEAN DISEASES IN NEW YORK IN 1936

A. L. Harrison and W. H. Burkholder

A survey of some of the important canning bean districts was made to determine the prevalence of canning bean diseases. The survey covered the following counties: Madison, Cortland, Seneca, Ontario, Cayuga, Wayne, Yates, Livingston, Erie, and Genesee.

Bean mosaic was the most destructive disease observed on the survey on the variety Stringless Green Pod Refugee. It was not so severe, however, as in the past few years. Some fields had all of the plants infected, while in others less than 10 percent of the plants were infected. Many more fields with less than 50 percent of the plants infected with mosaic were observed this year than in previous surveys. Many fields in the vicinities of Springville and Cortland had only from 5 to 25 percent mosaic, while such fields were much less common in other parts of the State visited.

In several cases early-planted fields of Stringless Green Pod Refugee suffered much more from mosaic than late-planted fields. This is in keeping with observations of other workers, but it had never before been observed to be so pronounced. The mosaic-infected plants in some of the early-planted fields continued to grow vegetatively long after the normal time to produce pods, and as a result produced witches brooms. The hot dry weather probably was a contributing factor in producing these witches brooms. Excessive vine growth was not observed on any of the healthy plants.

A disease apparently caused by a virus was observed rather extensively in some fields of Wisconsin Refugee which is immune to the common mosaic. It produces symptoms that are quite distinct from yellow mosaic of beans, which was also observed in the plantings of Wisconsin Refugee.

The first evidence of the disease is usually a distinct dwarfing and malformation of one of the lateral leaflets and one half of the apical

leaflet, on the same side, of a compound leaf. Associated with this stunting is a marked mosaic pattern of yellow, green and dark green, and frequently a necrosis of the veins and the petiole. On leaves produced later, the symptoms may be over the entire leaf or only on one half. Rarely do the leaves that are produced after infection develop normally. Distinct necrosis and marked malformation of the young pods have been noticed. Plants that are infected early are much stunted, while those that are infected late in the season usually have only one or two branches affected.

As many as 30 percent of the plants have been observed to be affected with this malady in some fields of Wisconsin Refugee. It has not been seen in any fields of the regular Stringless Green Pod Refugee. The yield from infected plants is greatly reduced.

Other diseases observed on the survey were dry root rot (Fusarium martii phaseoli) and bacterial blight (Bacterium spp.). The former was serious in a few fields, while the latter was only observed on occasional plants. Neither anthracnose (Colletotrichum lindemuthianum) nor angular leaf spot (Isariopsis griseola) were observed in any of the fields visited. (New York State Agricultural Experiment Station, Geneva, September 10.)

VARIETAL SUSCEPTIBILITY OF LIMA BEANS TO MOSAIC

A. L. Harrison

A marked difference in the susceptibility of several varieties of lima beans to mosaic was observed in a variety planting of the Vegetable Crops Divison of the New York State Agricultural Experiment Station, Geneva, New York. The varieties planted and their reaction is given in the following list. Those varieties marked susceptible had from 95 to 100 percent of the plants affected, while those marked resistant did not have any plants affected or only an occasional plant. No attempt has been made as yet to identify the virus involved.

Variety	Type	Susceptibility to mosaic
Jackson Wonder	Bush	Susceptible
Woods Prolific	Bush	Susceptible
U. S. #2	Bush	Susceptible
Florida Speckled	Pole	Susceptible
Willow Leaved	Pole	Susceptible
McCrea	Bush	Resistant
Burpees	Bush	Resistant
Fordhook	Bush	Resistant
King of Garden	Pole	Resistant
Challenger	Pole	Resistant

(New York State Agricultural Experiment Station, Geneva, September 10.)

RUST OF BEANS IN NEW JERSEY

C. M. Haenseler

In New Jersey rust (Uromyces phaseoli typica) on green beans is unusually prevalent this fall. Our past records going back to 1913 show only traces or occasional infested fields annually but this fall the disease is of state-wide distribution and the cause of serious defoliation in many fields. We have very few varieties in New Jersey with which to make comparisons but it is of interest to note that Bountiful, which has been classed by Harter et al. (Harter, L. L., C. F. Andrus, and W. J. Zaumeyer. Studies on bean rust caused by Uromyces phaseoli typica. Jour. Agr. Res. 50:737-759. 1935) as being in the "slightly susceptible" class, shows very severe rusting in some of our fields. (New Jersey State Agricultural Experiment Station, October 6.)

[NOTE: For reports on unusual occurrence of bean rust in Florida, Mississippi, and Massachusetts this year see the Reporter, pages 133, 173, 282, and 285.]

INTERNAL BROWNING OF WATERMELON

A disease identical with the non-parasitic trouble of watermelon reported from Georgia by Max B. Hardy in the Reporter for September 15, page 257, was described under the name internal browning by Gilbert and Artschwager in 1925. They reported it on the Tom Watson variety grown at Burroughs, Georgia (Gilbert, W. W., and Ernst Artschwager. Watermelon internal browning. Phytopath. 15:119-121. Illus. 1925).

This identity was noticed both by Dr. Gilbert who brought it to Mr. Hardy's attention, and by Dr. G. B. Ramsey who had also seen the trouble in Georgia in 1925.

Mr. Hardy writes to Dr. Gilbert (September 30):

"After reading your description, I am certain that the condition which I described is exactly the same.

"The variety affected was the Cuban Queen and I noted that the necrotic areas were somewhat deeper in the tissue with this variety than you reported for the Tom Watson. There was also the additional effect that the condition in young melons approximately the size of cantaloupes caused a deformation and knotty appearance of the fruits, but very little discoloration or change in color. When the rains came many of the melons matured in what might be considered a normal manner except, of course, that they retained their misshapen appearance and the necrotic areas. The flavor of the affected melons appeared to be nearly normal."

Dr. Ramsey reports that Cuban Queen melons from Monett, Missouri, received in Chicago during the last part of August this year were affected by internal browning.

BROWN SPOT AND BACTERIAL STALK ROT OF CORN NEAR CAIRO, ILLINOIS, IN 1936

Benjamin Koehler

Brown spot caused by Physoderma zeae-maydis showed a prevalence of practically 100 percent of the corn plants affected in a number of fields visited in the bottoms near where the Ohio and Mississippi Rivers join. On many plants the major area of the leaf sheaths and lower parts of the blades was taken up by the dark pustules.

Farmers, however, were especially concerned about the occurrence of bacterial stalk rot caused by Bacterium dissolvens. When visited on August 3, down stalks, all caused by this disease, were conspicuous, involving as much as one-fourth of the plants in spots. Extensive counts made on a 100-acre field of Long John by Mr. G. H. Boewe showed 5.3 percent of the plants rotted off and fallen down. Neighboring fields of other varieties showed slightly less infection. Specimens were sent to Dr. H. R. Rosen who checked the diagnosis.

The area on which these two diseases were found had been flooded late in the winter when the Ohio River reached its high stage, and several inches of silt had been deposited. Furthermore, this was one of the few places in Illinois that had received sufficient rain for good corn growth. The bacterial stalk rot was observed only in this limited area this year but brown spot extended about 75 miles northward along the Mississippi River bottoms. (Illinois Agricultural Experiment Station.)

GRAIN SEED-TREATMENT OPERATIONS

The September issue of the Extension Pathologist (Serial No. 23; issued by the Division of Cooperative Extension and the Bureau of Plant Industry) contains accounts of grain seed-treatment services and campaigns and results therefrom in a number of States.

TWO DISEASES OF ORNAMENTALS

STEM ROT AND WILT OF SNAPDRAGONS IN NEW JERSEY: R. P. White, in the September issue of Nursery Disease Notes (Vol. 9, no. 3; mimeographed, issued by the New Jersey Agricultural Experiment Station Department of Plant Pathology), describes a stem rot and wilt of snapdragons that appeared

in several widely separated greenhouses in New Jersey this year. Pure cultures of Phytophthora cactorum were obtained in a high percentage of isolations from diseased stems. In one house the disease caused complete loss; in another three crops were lost, even though the soil was changed once; in a third as much as 75 percent loss was evident at the end of September in portions of benches and the disease was scattered throughout the house. The soil was of a different type and pH in each of these houses. The sources of infection could not be determined, but indications are that, at least in one case, the organism was introduced into the benches with manure. The disease has never been observed in New Jersey prior to this year.

WILT OF MARIGOLD IN NEW YORK: B. O. Dodge reports a wilt of African marigold, Tagetes erecta, and of the dwarf varieties, T. patula and T. signata pumila, that did some damage to plantings at the New York Botanical Garden (Dodge, B. O., Marigold wilt. Jour. New York Bot. Gard. 37:211-214. Sept. 1936). The disease is similar to the Fusarium wilt of China aster and it is probable that an undetermined species of Fusarium found on dying plants is the cause of the marigold wilt. A species of Verticillium has also been found at the base of the plants but is believed to be secondary.

SOURCES OF DISEASE-RESISTANT VEGETABLE AND FLOWER SEEDS, 1936

This 41-page mimeographed "list of seed companies offering standard resistant varieties for sale in 1936" issued by the Extension Service and the Bureau of Plant Industry, may be useful to some of our readers. It was prepared in the office of R. J. Haskell, Extension Plant Pathologist, assisted by various members of the Division of Fruit and Vegetable Crops and Diseases. Inquiries should be addressed to Dr. Haskell.

DUTCH ELM DISEASE ERADICATION

(From weekly reports of the Bureau of Entomology and Plant Quarantine for the period September 6 to October 10, inclusive.)

One important confirmation outside of the generally infected area was received during the period. This was of a four-part tree within 50 feet of the Baltimore and Ohio railroad tracks at Cumberland, Maryland. One of the major parts had died in 1935 and the rest of the tree was severely diseased. Preliminary inspection showed 1934, 1935, and 1936 discoloration. Cumberland is 66 miles west of Brunswick, Maryland, and 114 miles west of Baltimore. The finding of diseased trees at Baltimore, Brunswick, and Cumberland, and of Scolytus infestation at Parkersburg,

West Virginia, indicates that dangerous diseased and beetle-infested logs entered at Baltimore and were hauled over the B & O to the Mid-west. S. multistriatus has been found over an extensive area in the Ohio River Valley in Ohio and West Virginia.

Infected trees found at Branford and Guilford have extended the protective zone in Connecticut so that it is now continuous from the Fairfield County major infected zone through New Haven and Middlesex Counties to New London County.

Following is a tabulation showing a comparison between the diseased trees found in 1935 and those found in 1936 to date (September 19) in New York State:

County	1935	1936	Increase or decrease
Westchester	872	860	-12
Rockland	514	495	-19
Richmond	276	66	-210
Bronx	328	184	-144
Nassau	55	57	+2
Kings	15	2	-13
Queens	16	6	-10
Suffolk	0	1	+1
Orange	3	12	+9
Putnam	4	3	-1
New York	1	2	+1
	2,084	1,688	-396

Although the above figures are not final since laboratory reports will continue in October and corrections for root grafting and reconfirmations must be made, it appears that the New York total for this season will be at least 250 trees under the 1935 confirmations. The results are particularly encouraging in the counties comprising New York City, where a reduction of over 54 percent was recorded.

The progress of the eradication campaign is shown in the following figures:

	Connecticut	New Jersey	New York	Outside	Total
September 6 to October 10					
Trees confirmed	7	778	173	1	959
Trees removed	9	1,340	271	1	1,621
Total to October 10					
Trees confirmed	235	14,958	6,496	78	21,767
Trees removed	235	14,406	6,478	78	21,197

ANOTHER BLISTER RUST INFECTION CENTER FOUND IN CALIFORNIA

Scouting in northern California resulted in the location of 120 Ribes bushes and 2 sugar pines infected with blister rust, Cronartium ribicola. Infections were found on R. bracteosum, R. sanguineum, and R. lobbii. This infection spot was about 5 miles south of the Oregon border along the East Fork of Indian Creek and is the first infection found south of the summit of the Siskiyou Mountains in California. It is located in sugar-pine type, and numerous Ribes of several species occur all through this area. The discovery of this infection is of particular significance in that it discloses the rust to be established south of the Siskiyou in a region where sugar pines and Ribes are numerous and conditions for the general spread of infection over the northern Sierras into commercial pine areas are most favorable. (From Bureau of Entomology and Plant Quarantine News Letter, vol. 3, no. 10, page 17. Oct. 1, 1936.)

MIDWEST DROUGHT REDUCED RUST INFECTION ON RIBES

The prolonged Midwest drought had very noticeable pathological and physiological effects upon Ribes in the North Central States. The intense heat, together with the lack of precipitation for three months, greatly reduced the usual intense infection of Cronartium ribicola on Ribes. It is also reported that telia were late in forming and appeared very sparsely. A large number of the upland Ribes species were completely defoliated; however, some of these defoliated bushes are producing new leaves since the recent rains. (From Bureau of Entomology and Plant Quarantine News Letter, vol. 3, no. 10, page 18. Oct. 1, 1936.)

PHONY PEACH DISEASE FOUND IN INDIANA AND PENNSYLVANIA

Surveys for the phony peach disease in States north of the region of known infestation have been completed in Ohio, Indiana, and Pennsylvania, with the assistance of State inspectors, and have resulted in the discovery of one infected tree each in Gibson County, Indiana, and Berks County, Pennsylvania, the latter the most northern point the disease has been found. The survey is to include the peach-growing areas in Virginia, West Virginia, Maryland, Delaware, and New Jersey. Inspections are also under way in 12 southeastern States where the disease is known to exist, the work covering commercial and home orchards, and the environs of nurseries. The work of relief laborers in removing over 42,000,000 worthless peach trees from 212 counties in the infected States during the year is an important supplement to the inspection activities. (From Bureau of Entomology and Plant Quarantine News Letter, vol. 3, no. 10, page 29. Oct. 1, 1936.)

RECURRENT CITRUS CANKER IN GALVESTON, TEXAS, DISTRICT

Several of the properties in Galveston, Brazoria, and Harris Counties, where citrus canker (Bacterium citri) was found last year in an intensive campaign of inspection, and which have been repeatedly inspected in the intervening months, are showing canker on small seedlings. All properties from which citrus plants have been removed under the eradication program are now being reworked for the purpose of removing all seedlings. A close inspection is being made of the entire section in an effort to examine every citrus tree, and all abandoned and escaped trees are being destroyed in the course of inspection. Several other counties in the vicinity are also being inspected, particularly the properties found infected with canker in earlier years, but no further cases of the disease have been found. In the lower Rio Grande Valley, continuous inspection is carried on as a separate and distinct unit. In the past fiscal year the work covered 2,400 grove and nursery properties, principally in Hidalgo County, with special attention given to abandoned citrus trees. A tree-to-tree examination made of all properties that showed canker in earlier years, resulted in finding that the lower Rio Grande Valley is apparently still free from citrus canker. (From Bureau of Entomology and Plant Quarantine News Letter, vol. 3, no. 10, page 29. Oct. 1, 1936.)

A CORRECTION

On page 272 of the preceding issue of the Reporter, in the note by Paul R. Miller on cotton diseases in the Mississippi Delta, an obvious misprint shows the May departure from the normal rainfall as +, instead of -3.86 inches. Please make this correction in your copy.

SEPTEMBER WEATHER

Figure 49 shows that September was warmer than normal in practically all sections of the country, the plus departures being especially pronounced in the Interior Valleys. In the extreme northeast about-normal warmth prevailed and the monthly means were slightly below normal locally in Rocky Mountain sections. The dotted line on this chart shows the southern limit of freezing weather during September, as reported from first-order stations.

Figure 50 shows the percentage of normal precipitation for September by States, based on preliminary, but nearly complete, records. It indicates that, in marked contrast to preceding months, September had more than normal rainfall over most sections east of the Rocky Mountains, the monthly totals being especially large from Texas and New Mexico northeastward over the Central Valleys. Texas, Oklahoma, Missouri, and Iowa had more than double the normal rainfall, while a number of other States received substantially more than the usual September moisture.

In a large area in the Northwest, extending eastward to central-northern sections, rainfall continued deficient, a few States having less than half the normal. The greatest deficiencies are shown for California and South Dakota, with 35 to 44 percent of normal, respectively. (From the U. S. Weather Bureau Weekly Weather and Crop Bulletin for the week ending October 6, 1936.)

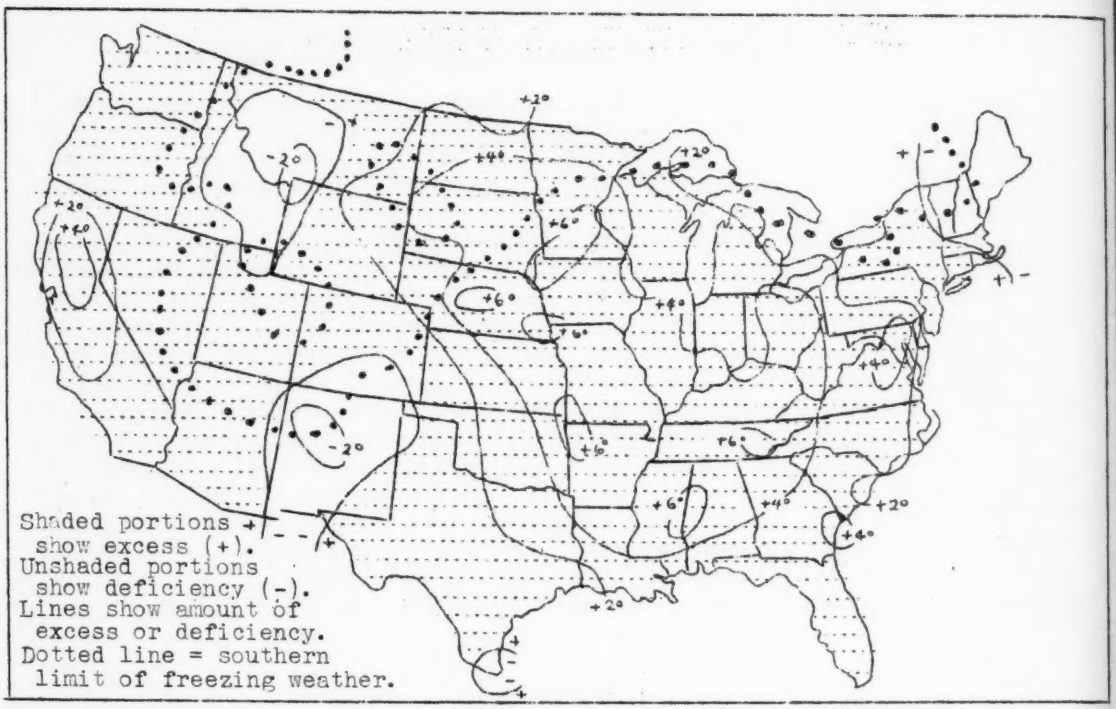
Shaded portions show excess (+).
Unshaded portions show deficiency (-).
Lines show amount of excess or deficiency.
Dotted line = southern limit of freezing weather.

Fig. 49. Departure of Mean Temperature from the Normal for September 1936.

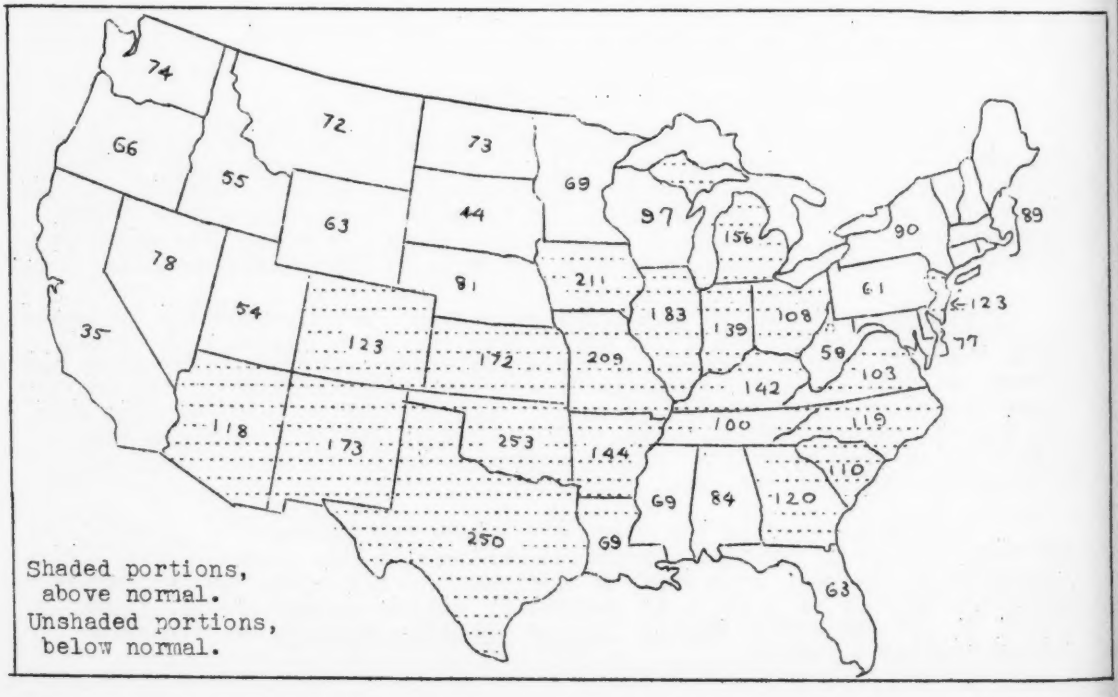

Fig. 50. Percentage of Normal Precipitation, by States, for September 1936.